

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2019-281-S

IN RE:

)
)
Application of Palmetto Utilities, Inc. for)
adjustment of rates and charges for, and)
modification to certain terms and conditions)
related to, the provision of sewer service.)

PREFILED DIRECT TESTIMONY
OF
HAROLD WALKER
ON BEHALF OF PALMETTO
UTILITIES, INC.

Prepared by:
GANNETT FLEMING
VALUATION AND RATE CONSULTANTS, LLC



Valley Forge, Pennsylvania

TABLE OF CONTENTS

INTRODUCTION	1
OPINION OF THE VALUE OF CIAC	2
SUMMARY OF OVERALL RATE OF RETURN RECOMMENDATION	3
PRINCIPLES OF RATE REGULATION AND FAIR RATE OF RETURN	4
INVESTMENT RISK	5
DESCRIPTION OF PUI	6
THE INDUSTRY	7
COMPARABLE GROUP	9
CAPITAL STRUCTURE	11
EMBEDDED COST RATE	13
FINANCIAL ANALYSIS	13
RISK ANALYSIS	16
CAPITAL COST RATES	22
COMMON EQUITY COST RATE ESTIMATE	26
DISCOUNTED CASH FLOW	27
CAPITAL ASSET PRICING MODEL	36
RISK PREMIUM	39
SUMMARY OF COMMON EQUITY COST RATE	43
OVERALL RATE OF RETURN RECOMMENDATION	45
APPENDIX A	A-1

OVERALL RATE OF RETURN TERMS, ABBREVIATIONS AND ACRONYMS

Terms, Abbreviations and Acronyms	Defined
CAPM	Capital Asset Pricing Model
Commission	Public Service Commission of South Carolina
Company	Palmetto Utilities, Inc.
Comparable Companies	Water Group Followed by Analysts
Comparable Group	Water Group Followed by Analysts
Cost of Capital	Investor-required cost rate
DCF	Discounted Cash Flow
DPS	Dividend per share
EPA	U.S. Environmental Protection Agency's
EPS	Earnings per share
Financial Risk	Leverage
GICS	Global Industry Classification System
GO	General Obligation Bonds
IOU	Investor Owned Utilities
Leverage	Fixed cost capital
Long-term U.S. Treasury Securities	Base Risk-Free Rate
M/B	Market-to-Book Ratios
Moody's	Moody's Investors Service
NARUC	National Association of Regulatory Utility Commissioners
Non-Systematic Risk	Company-Specific Risk
PSC	Public Service Commission of South Carolina
PUI	Palmetto Utilities, Inc.
ROE	Return on Equity
RP	Risk Premium
S&P	Standard & Poor's
SIC	Standard Industrial Classification
Systematic Risk	Non-Diversifiable Risk
Value Line	Value Line Investment Survey
Water Group	Water Group Followed by Analysts

INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Harold Walker, III. My business mailing address is 1010 Adams Avenue, Audubon, Pennsylvania 19403.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Gannett Fleming Valuation and Rate Consultants, LLC as Manager, Financial Studies.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND EMPLOYMENT EXPERIENCE?

A. My educational background, business experience and qualifications are provided in Appendix A.

SCOPE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is twofold: First, to describe and explain our opinion on the probable value of the customer contribution in aid of construction ("CIAC") related to Palmetto of Richland County, LLC's acquisition of some wastewater assets owned and operated by the City of Columbia, South Carolina ("City"); and Second, to recommend an appropriate overall rate of return that Palmetto Utilities, Inc. ("PUI" or the "Company") should be afforded an opportunity to earn on its wastewater service rate base. My testimony regarding our opinion of the value of CIAC is based on our August 2018 report entitled "Opinion on the Probable Value of Customer Contribution in Aid of Construction Related to the Acquisition of Some Wastewater Assets Owned and Operated by the City of Columbia, South Carolina" which is labeled as Exhibit HW-1, and is composed of 47 pages. My overall rate of return testimony is supported by Exhibit HW-2, which is composed of 19 Schedules. It should be noted that when I make reference to a schedule I am referring the schedules contained in Exhibit HW-2 unless noted otherwise.

OPINION OF THE VALUE OF CIAC

Q. WHY ARE YOU PROVIDING AN OPINION OF THE VALUE OF CIAC?

A. PUI engaged Gannett Fleming Valuation and Rate Consultants, LLC to provide an opinion on the probable value of the customer contribution in aid of construction (CIAC) related to the acquisition of some wastewater assets owned and operated by the City of Columbia, South Carolina ("City"). In August 2018 Gannett Fleming Valuation and Rate Consultants, LLC issued their report describing their analyses and presented their findings, a copy of which comprises Exhibit HW-1.

Q. WHY IS THERE QUESTIONS REGARDING THE VALUE OF CIAC?

A. In 2012, the Palmetto of Richland County, LLC ("PRC") and the City entered into an asset purchase agreement ("APA") as part of the sale of the of the City's sewer collection system serving 11,182 equivalent residential customers ("ERC") located in an unincorporated area of Richland County ("Collection System" or the "City System").¹ The purchase of the Collection System was approved by the Public Service Commission of South Carolina in 2012. Prior to the sale of the Collection System, the City was charging their new wastewater customers an expansion fee ("Expansion Fee").

Post-acquisition of the Collection System, PUI has been asked about their accounting of the Collection System's CIAC related to the Expansion Fees collected under City ownership.

Q. WHAT ARE THE FINDINGS AND CONCLUSION REGARDING THE VALUE OF CIAC?

A. Legally the Expansion Fee related CIAC had no value to PRC at the purchase date or currently as PRC has never had title or ownership of the underlying treatment assets. Economically, the Expansion Fee related CIAC had no value to PRC at the purchase date or currently since PRC has never had use of the underlying capital. From a regulator's perspective, the Expansion Fee related CIAC has no value to PRC currently due to the "used and useful" principal.

¹ In 2017, PRC merged with PUI, with PUI being the surviving entity.

Based on our analysis, as described in Exhibit HW-1, I can state with complete certainty the value of the CIAC related to Palmetto of Richland County, LLC's 2013 acquisition of some wastewater assets owned and operated by the City was \$0 (zero) and should be carried on the books of Palmetto Utilities, Inc. at \$0 (zero).

SUMMARY OF OVERALL RATE OF RETURN RECOMMENDATION

Q. WHAT IS YOUR RECOMMENDED COST OF EQUITY?

A. My recommendation is that PUI be permitted an overall rate of return of 8.57%, including a 10.50% cost of common equity, based upon the Company's capital structure at August 31, 2019. My recommended cost of common equity reflects PUI's unique risk characteristics.

Q. HOW DID YOU DETERMINE YOUR RECOMMENDED COMMON EQUITY COST RATE?

A. I used several models to help me in formulating my recommended common equity cost rate including Discounted Cash Flow ("DCF"), Capital Asset Pricing Model ("CAPM") and Risk Premium ("RP").

Q. IS IT IMPORTANT TO USE MORE THAN ONE MARKET MODEL?

A. Yes. It is necessary to estimate common equity cost rates using a number of different models. At any given time, a particular model may understate or overstate the cost of equity. While any single investor may rely solely upon one model, different investors rely on different models and many investors use multiple models. Therefore, because the price of common stock reflects a number of valuation models, it is appropriate to estimate the market-required common equity cost rate by applying a broad range of analytical models.

Q. PLEASE SUMMARIZE YOUR COMMON EQUITY COST RATE RECOMMENDATION.

A. There is no market data concerning PUI's shares of common stock because PUI shares of common stock are not publicly traded. Accordingly, due to the lack of market data concerning the PUI's equity, I used a comparable group of publicly traded companies to estimate the common equity cost rate. Based upon the results of my entire analysis, I

conclude PUI's current common equity cost rate is at least 10.50%. The current range of common equity cost for PUI is 10.50% (DCF), 10.20% (CAPM), and 10.80% (RP). Value Line Investment Survey ("Value Line") is relied upon by many investors and is the only investment advisory service of which I am aware that projects earned return on equity. As a check on the reasonableness of my common equity cost rate recommendation, I reviewed Value Line's projected returns on common equity for comparable utilities. Value Line's projected earned returns on common equity for my comparable utilities range from 9.5% to 14.0%. The range of the projected returns suggests that my recommendation that PUI be permitted an opportunity to earn 10.50% is reasonable, if not conservative.

PRINCIPLES OF RATE REGULATION AND FAIR RATE OF RETURN

Q. WHAT ARE THE PRINCIPLES GUIDING FAIR RATES OF RETURN IN THE CONTEXT OF RATE REGULATION?

A. In a capitalistic or free market system, competition determines the price for all goods and services. Utilities are permitted to operate as monopolies or near monopolies as a tradeoff for a ceiling on the price of service because: (1) the services provided by utilities are considered necessities by society; and (2) capital-intensive and long-lived facilities are necessary to provide utility service. Generally, utilities are required to serve all customers in their service territory at reasonable rates determined by regulators. As a result, regulators act as a substitute for a competitive-free market system when they authorize prices for utility service.

Although utilities operate in varying degrees as regulated monopolies, they must compete with governmental bodies, non-regulated industries, and other utilities for labor, materials, and capital. Capital is provided by investors who seek the highest return commensurate with the perceived level of risk; the greater the perceived risk, the higher the required return rate. In order for utilities to attract the capital required to provide service, a fair rate of return should equal an investor-required, market-determined rate of return.

1 **Q. WHAT CONSTITUTES A FAIR RATE OF RETURN?**

2 A. Two noted Supreme Court cases define the benchmarks of a fair rate of return. In
 3 *Bluefield*², a fair rate of return is defined as: (1) equal to the return on investments in other
 4 business undertakings with the same level of risks (the comparable earnings standard);
 5 (2) sufficient to assure confidence in the financial soundness of a utility (the financial
 6 integrity standard); (3) adequate to permit a public utility to maintain and support its credit,
 7 enabling the utility to raise or attract additional capital necessary to provide reliable service
 8 (the capital attraction standard). The second case, *Hope*³, determined a fair rate of return
 9 to be based upon guidelines found in *Bluefield* as well as stating that: (1) allowed revenues
 10 must cover capital costs including service on debt and dividends on stock; and (2) the
 11 Commission was not bound to use any single formula or combination of formulae in
 12 determining rates. Utilities are not entitled to a guaranteed return. However, the
 13 regulatory-determined price for service must allow the utility a fair opportunity to recover
 14 all costs associated with providing the service, including a fair rate of return.

15
 16 **INVESTMENT RISK**
 17

18 **Q. PREVIOUSLY, YOU REFERRED TO RISK. PLEASE DEFINE THE TERM RISK.**

19 A. Risk is the uncertainty associated with a particular action; the greater the uncertainty of a
 20 particular outcome, the greater the risk. Investors who invest in risky assets expose
 21 themselves to investment risk particular to that investment. Investment risk is the sum of
 22 business risk and financial risk. Business risk is the risk inherent in the operations of a
 23 business. Assuming that a Company is financed with 100% common equity, business risk
 24 includes all operating factors that affect the probability of receiving expected future income
 25 such as: sales volatility, management actions, availability of product substitutes,
 26 technological obsolescence, regulation, raw materials, labor, size and growth of the market
 27 served, diversity of the customer base, economic activity of the area served, and other
 28 similar factors.

² Bluefield Water Works & Improvement Company v. P.S.C. of West Virginia, 262 U.S. 679 (1923).

³ Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591 (1944).

Q. WHAT IS FINANCIAL RISK?

A. Financial risk reflects the manner in which an enterprise is financed. Financial risk arises from the use of fixed cost capital (leverage) such as debt and/or preferred stock, because of the contractual obligations associated with the use of such capital. Because the fixed contractual obligations must be serviced before earnings are available for common stockholders, the introduction of leverage increases the potential volatility of the earnings available for common shareholders and therefore increases common shareholder risks.

Although financial risk and business risk are separate and distinct, they are interrelated. In order for a company to maintain a given level of investment risk, business risk and financial risk should complement one another to the extent possible. For example, two firms may have similar investment risks while having different levels of business risk, if the business risk differences are compensated for by using more or less leverage (financial risk) thereby resulting in similar investment risk.

DESCRIPTION OF PUI

Q. PLEASE GIVE A BRIEF DESCRIPTION OF THE COMPANY.

A. PUI is a corporation authorized to conduct business in the State of South Carolina and which provides sewer service in areas of Richland and Kershaw Counties of South Carolina. Ni South Carolina Utilities, Inc. is the direct parent of PUI and Ni South Carolina Utilities, Inc. is owned by Ni Pacolet Milliken Utilities, LLC. PUI provides wastewater services to approximately 27,900 customers (2019) who are located in their franchise territory in Richland and Kershaw Counties of South Carolina. The price of service of PUI is regulated by the Public Service Commission of South Carolina ("Commission" or "PSC").

THE INDUSTRY

Q. PLEASE GIVE A BRIEF OVERVIEW OF THE INDUSTRY IN WHICH THE COMPANY OPERATES.

A. PUI operates in the wastewater supply industry. The wastewater utility industry has a Standard Industrial Classification (“SIC”) code of 4952 (Sewerage Systems), has sewer utilities, and includes establishments primarily engaged in the collection and disposal of wastes conducted through a sewer system, including such treatment processes as may be provided. There are currently 1,864 U.S. Businesses with a SIC code of 4952.

A comparative industry to the wastewater supply industry is the water supply industry. The water supply industry has a Standard Industrial Classification (“SIC”) code of 4941, has water utilities, and includes establishments primarily engaged in distributing water for sale for residential, commercial, and industrial uses. Government controlled establishments such as municipalities, public service districts and other local governmental entities dominate the industry. Private companies or investor owned utilities (“IOU”) are active in the construction and improvement of water supply facilities and infrastructure. There are currently 9,391 U.S. Businesses with a SIC code of 4941.

The water supply industry is the most fragmented of the major utility industries with more than 53,000 community water systems in the U.S. (83% of which serve less than 3,300 customers). The nation’s water systems range in size from large municipally owned systems, such as the New York City water system that serves approximately 9 million people, to small systems, where a few customers share a common well.

According to the U.S. Environmental Protection Agency’s (“EPA”) most recent survey of publicly-owned wastewater treatment facilities in 2008, there are approximately 15,000 such facilities in the nation, serving approximately 74% of the U.S. population. Eighty percent of domestic wastewater systems are government owned rather than IOUs. Currently, there are no wastewater utility companies that have actively traded stock.⁴

⁴ Many of the publicly traded water utility stocks also own some wastewater utilities but there are no publicly traded utility stocks which are comprised solely of wastewater utilities.

1 An estimated 14% of all water supplies are managed or owned by IOUs. IOUs consist of
2 companies with common stock that is either actively traded or inactive traded, as well as
3 companies that are closely held, or not publicly traded. Currently, there are only about
4 nine investor owned water utility companies with publicly traded stock in the U.S.

5
6 The wastewater utility industry's and water utility industry's increased compliance with
7 state and federal water purity levels and large infrastructure replacements are driving
8 consolidation of the wastewater utility and water utility industries. Because many
9 wastewater utility and water utility operations do not have the means to finance the
10 significant capital expenditures needed to comply with these requirements, many have been
11 selling their operations to larger, financially stronger operations.

12
13 The larger IOUs have been following an aggressive acquisition program to expand their
14 operations by acquiring smaller wastewater and water systems. Generally, they enter a
15 new market by acquiring one or several wastewater or water utilities. After their initial
16 entry into a new market, the larger investor-owned water utility companies continually seek
17 to expand their market share and services through the acquisition of wastewater and water
18 utility businesses and operations that can be integrated with their existing operations.
19 Such acquisitions may allow a company to expand market share and increase asset
20 utilization by eliminating duplicate management, administrative, and operational
21 functions. Acquisitions of small, independent utilities can often add earning assets
22 without necessarily incurring the costs associated with the SDWA if such acquisitions are
23 contiguous to the potential purchaser.

24
25 In summary, the result of increased capital spending, to meet the SDWA and CWA
26 requirements⁵ and replace the aging infrastructure of many systems, has moved the

⁵ The SDWA, or Safe Drinking Water Act, is the principal federal law in the United States intended to ensure safe drinking water for the public. Pursuant to the act, the EPA is required to set standards for drinking water quality and oversee all states, localities, and water suppliers who implement these standards. The CWA, or Clean Water Act, is the primary federal law in the United States governing water pollution. The CWA's objective is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

wastewater and water industries toward consolidation. Moreover, Federal and State regulations and controls concerning water quality are still in the process of being developed and it is not possible to predict the scope or the enforceability of regulations or standards which may be established in the future, or the cost and effect of existing and potential regulations and legislation upon PUI. However, as a smaller wastewater system, PUI faces the cost of compliance with less financial resources when compared to larger IOU water utilities.

COMPARABLE GROUP

Q. HOW DO YOU ESTIMATE THE COST OF COMMON EQUITY FOR PUI?

A. PUI's common stock is not publicly traded. Accordingly, I employed a comparable group of utility companies with actively traded stock, to determine a market-required cost rate of common equity capital for PUI. Since no companies are perfectly identical to PUI, it is reasonable to determine the market-required cost rate for a comparable group of utility companies and adjust, to the extent necessary, for investment risk differences between PUI and the comparable group.

Q. HOW DID YOU SELECT THE COMPARABLE GROUP USED TO DETERMINE THE COST OF COMMON EQUITY FOR PUI?

A. I selected a comparable group of water utilities to determine the cost of common equity for PUI considering security analysts' coverage. Unlike the other utility industries, only a portion of the IOU water companies with publicly traded stock in the U.S. are followed by security analysts. Coverage by security analysts is important when determining a market required cost of common equity. Accordingly, security analysts' coverage was considered when selecting my comparable group. I selected my water utility comparable group, Water Group Followed by Analysts ("Water Group"), based upon a general criteria that includes: (1) all U.S. water utilities who are covered by several security analysts as measured by the existence of several sources of published projected five-year growth rates in earnings per share ("EPS"); (2) with a Standard Industrial Classification (SIC) of 4941 (i.e., Water Supply Facilities and Infrastructure); (3) with a North American Industry Classification

System (NAICS) of 221310 (i.e., Water Supply and Irrigation Systems); (4) are not the announced subject of an acquisition; (5) currently pay a common dividend and have not reduced their common dividend within the past four years; (6) have market value of common stock, the product of multiplying the closing stock price by the number of common shares outstanding, greater than \$200.0 million; and (7) have a total enterprise, the sum of market value, preferred stock and total debt, greater than \$450.0 million.

It should be noted that the Water Group is also referred to as the Comparable Group and/or the Comparable Companies.⁶ The names of the utilities that comprise the Comparable Group and their bond or credit ratings are listed in Table 1.

Bond and Credit Ratings for <u>The Water Group Followed by Analysts</u>	
	<u>S&P Credit_</u> <u>Rating</u>
<u>Water Group Followed by Analysts</u>	
American States Water Co	A+
American Water Works Co Inc	A
Aqua America Inc	A
California Water Service Gp *	A+
Middlesex Water Co	A
SJW Corp	A-
York Water Co	<u>A-</u>
Average	<u>A</u>
* - The A+ bond rating is that for California Water Service, Inc.	

Table 1

⁶ All of the Comparable Companies also provide some wastewater service.

1
2 **Q. WHY DID YOU INCLUDE NOT BEING THE SUBJECT OF AN ACQUISITION AS A CRITERIA FOR**
3 **THE WATER GROUP?**

4 A. To begin with, there are only about nine investor owned water utility companies with
5 publicly traded stock in the U.S., and some of these companies are very small. As stated
6 previously, the IOU water industry receives only limited exposure on Wall Street.
7 Additionally, the merger activity in the water industry can result in abnormal or “tainted”
8 stock prices in terms of a DCF analysis because premiums are typically paid in corporate
9 acquisitions. That is, when a tender offer is made for the purchase of all the outstanding
10 stock of a company, the amount of that offer usually exceeds the price at which the stock
11 was previously traded in the market. These large premiums are often reflected in the
12 prices of other water utilities that are not currently the announced subject of an acquisition.⁷
13

14 **CAPITAL STRUCTURE**

15
16 **Q. WHAT IS REQUIRED TO DEVELOP AN OVERALL RATE OF RETURN?**

17 A. The first step in developing an overall rate of return is the selection of capital structure
18 ratios to be employed. Next, the cost rate for each capital component is determined. The
19 overall rate of return is the product of weighting each capital component by its respective
20 capital cost rate. This procedure results in PUI’s overall rate of return being weighted
21 proportionately to the amount of capital and cost of capital of each type of capital.
22

23 **Q. DOES PUI DIRECTLY RAISE OR ISSUE ITS OWN DEBT CAPITAL?**

24 A. No, PUI’s indirect parent, Ni Pacolet Milliken Utilities, LLC, raises the debt capital that is
25 allocated to PUI.

⁷ Multiple publications mention these impacts including Research Magazine – April 2010, Barron’s – March 2001, Utility Business – June 2002, and Value Line Investment Survey – April 2013.

Q. WHAT CAPITAL STRUCTURE RATIOS ARE APPROPRIATE TO BE USED TO DEVELOP PUI'S OVERALL RATE OF RETURN?

A. Consistent with settled rate setting principles, I believe it is necessary to evaluate PUI's current cost of capital based on their August 31, 2019 capital structure, which includes 41.79% debt and 58.21% common equity as reflected in Schedule 1. These ratios synchronize capitalization with rate base.

Q. HOW DOES YOUR RECOMMENDED CAPITAL STRUCTURE COMPARE WITH RATIOS EMPLOYED BY OTHER INVESTOR-OWNED COMPANIES?

A. The capital structure I recommend for PUI reflects a common equity ratio of 58.2% which falls within the range of the ratios employed by other investor-owned water companies as shown on pages 1 and 2 of Schedule 2. A comparison of my recommendation for PUI's capital structure ratios to those recently employed and forecasted to be employed by the Comparison Group is shown in Table 2.

<u>Comparison of Capital Structure Ratios</u>			
	<u>PUI</u>	<u>Water Group</u>	
	<u>At</u>	<u>At</u>	<u>Projected</u>
	<u>8/31/2019</u>	<u>9/30/2019</u>	<u>2023</u>
Debt	41.8	46.7	43.4
Preferred Stock	0.0	0.1	0.0
Common Equity	<u>58.2</u>	<u>53.2</u>	<u>56.6</u>
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Table 2

PUI's rate making capital structure ratios are reasonable based upon the above information. Moreover, PUI's smaller size justifies the use of more equity capital than the Comparison Group in order to counterbalance some of the risk associated with its size. The size of a company is an indicator of risk and is discussed later in my testimony in more detail.

EMBEDDED COST RATE

Q. WHAT EMBEDDED COST RATES DO YOU RECOMMEND BE USED TO CALCULATE PUI'S OVERALL RATE OF RETURN?

A. Consistent with my recommended capitals structure ratios I recommend using PUI's embedded debt cost rate of 5.89% for PUI as reflected and developed in Schedule 1. The determination of an embedded cost rate is a relatively simple arithmetic exercise because a company has contracted for this capital for a specific period of time and at a specific cost, including issuance expenses and coupon rate.

FINANCIAL ANALYSIS

Q. HAVE YOU REVIEWED HISTORICAL FINANCIAL INFORMATION OF PUI AS PART OF YOUR ANALYSIS?

A. Yes. On page 1 of Schedule 3, I developed a five-year analysis, ending in 2018, detailing various financial ratios for PUI. On Schedule 4, I performed a similar five-year analysis for the Water Group. Schedule 5 reveals the results of operations for a large broad-based group of utilities known as the Standard & Poor's ("S&P"), Utilities for the five years ending 2018. This information is useful in determining relative risk differences between different types of utilities.

Comparing PUI, the Comparable Group and the S&P Utilities' coverage of fixed charges and the various cash flow coverage proves that the Comparable Group has experienced a higher level of coverage than the S&P Utilities. Reviewing PUI's various cash flow coverages shows PUI has had lower levels of coverage than the Comparable Group.

Q. WHAT DO YOU CONCLUDE FROM THE COMPARISON OF ALL THE INFORMATION SHOWN ON SCHEDULES 3 THROUGH 5?

A. Taken together, these comparisons show that PUI is exposed to risk that is similar in nature but greater in degree compared with the Comparable Groups. This is evident in particular when one considers the size and diversification of PUI, or lack thereof, as compared to the

Comparable Companies. Moreover, the evidence from the various financial ratios show PUI's risks as being similar to the Comparable Companies' but less than the larger S&P Utilities. Prospectively, PUI's future construction expenditures will place downward pressure on PUI's financial ratios as measured by interest coverage and cash generation.

Q. WHAT INFORMATION IS SHOWN ON SCHEDULE 6?

A. Schedule 6 lists the names, issuer credit ratings, common stock rankings, betas and market values of the companies contained in the Comparable Group and the S&P Utilities. As is evident from the information shown on Table 3, the Comparable Group and the S&P Utilities are similar to each other in risk.

	S&P Issuer Credit <u>Rating</u>	S&P Quality <u>Ranking</u>	Value Line <u>Beta</u>	Recent Market <u>Value</u> (Mill \$)	Market Quartile <u>Name</u>
Water Group	A	Above Average (A-)	0.66	2,530.501	Low-Cap
S&P Utilities	BBB+	Average (B+)	0.64	33,867.833	Large-Cap

Table 3

The Water Group's average issuer credit ratings and common stock rankings are higher than the S&P Utilities. The average beta of the Comparable Group, 0.66, is similar to the average beta of the S&P Utilities, 0.64. Beta is a measure of volatility or market risk, the higher the beta, the higher the market risk. The market values provide an indication of the relative size of each group. As a generalization, the smaller the average sizes of a group, the greater the risk.

Page 2 of Schedule 7 shows that PUI has generally experienced the highest return on equity ("ROE") when compared to the Comparable Companies. It should be noted that the higher return was earned on a much lower common equity ratio. Further, PUI's dividend payout ratio is lower than the Comparable Companies' dividend payout ratio since PUI did not pay a dividend during the period analyzed.

1 S&P, the predominant bond rating agency, considers profit to be a fundamental
2 determinant of credit protection. S&P states that a firm's profit level:

3 Whether generated by the regulated or deregulated side of the business,
4 profitability is critical for utilities because of the need to fund investment-
5 generating capacity, maintain access to external debt and equity capital, and
6 make acquisitions. Profit potential and stability is a critical determinant of
7 credit protection. A company that generates higher operating margins and
8 returns on capital also has a greater ability to fund growth internally, attract
9 capital externally, and withstand business adversity. Earnings power
10 ultimately attests to the value of the company's assets, as well. In fact, a
11 company's profit performance offers a litmus test of its fundamental health
12 and competitive position.

13
14 Accordingly, the conclusions about profitability should confirm the
15 assessment of business risk, including the degree of advantage provided by
16 the regulatory environment.⁸
17

18 **Q. WHAT INFORMATION IS SHOWN ON SCHEDULE 7?**

19 A. Schedule 7 reveals the capital intensity and capital recovery for PUI, the Comparable
20 Companies and the S&P Utilities. Based upon the 2018 capital intensity ratio of plant to
21 revenues, PUI (\$10.77) is more capital intensive as compared to the Water Group (\$6.17)
22 and more than the S&P Utilities (\$4.33). From a purely financial point of view, based on
23 current accounting practices, the rate of capital recovery or depreciation rate is an
24 indication of risk because it represents cash flow and the return of an investment. PUI's
25 average rate of capital recovery is higher than the Comparable Group's, suggesting less
26 risk.
27

28 The return on equity and depreciation expense provides the margin for coverage of
29 construction expenditures. For a utility company, depreciation expense is the single
30 largest generator of cash flow. From a financial analyst's point of view, cash flow is the
31 life blood of a utility company. Without it, a utility cannot access capital markets, it
32 cannot construct plant, and therefore, it cannot provide service to its customers.

⁸ Standard & Poor's Ratings Services, *Criteria, Utilities: Key Credit Factors: Business And Financial Risks In The Investor-Owned Utilities Industry*, Nov. 26, 2008, pgs. 8-9.

RISK ANALYSIS

Q. PLEASE EXPLAIN THE INFORMATION SHOWN ON SCHEDULE 8.

A. Schedule 8 details the size difference between PUI and the Comparable Group. Company size is an indicator of business risk and is summarized in Table 4.

<u>Number of Times Larger Than the PUI</u>	
	<u>Water Group</u>
Capitalization	30.5x
Revenues	43.5x
Number of Customers	29.7x

Table 4

As shown in Table 4, PUI is much smaller than the Water Group. The size of a company affects risk. A smaller company requires the employment of proportionately less financial leverage (*i.e.*, debt and preferred capital) than a larger company to balance out investment risk. If investment risk is not balanced out, then a higher cost of capital is required.

Q. WHY IS SIZE SIGNIFICANT TO YOUR ANALYSIS?

A. The size of a company can be likened to ships on the ocean, since a large ship has a much better chance of weathering a storm than a small ship. The loss of a large customer will impact a small company much more than a large company because a large customer of a small company usually accounts for a larger percentage of the small company's sales. Moreover, a larger company is likely to have a more diverse geographic operation than a smaller company, which enables it to sustain earnings fluctuations caused by abnormal weather in one portion of its service territory. A larger company operating in more than one regulatory jurisdiction enjoys "regulatory diversification" which makes it less susceptible to adverse regulatory developments or eminent domain claims in any single jurisdiction. Further, a larger company with a more diverse customer base is less susceptible to downturns associated with regional economic conditions than a small

1 company. For example, on average, the average company in the Water Group provides
 2 water/sewer service in multiple states for about 803,000 customers. The average
 3 population of the communities served by the average company in the Water Group is about
 4 3.1 million people. These wide-ranging operations provide the Water Group substantial
 5 geographic, economic, regulatory, weather and customer diversification. PUI provides
 6 regulated water service to about 27,900 customers (2019). The concentration of PUI's
 7 business in central South Carolina makes it very susceptible to any adverse development
 8 in local regulatory, economic, demographic, competitive and weather conditions.

9
 10 Further, S&P, a major credit rating agency, recognizes the importance that diversification
 11 and size play in credit ratings. S&P believes some of the critical factors include: regional
 12 and cross-border market diversification (mitigates economic, demographic, and political
 13 risk concentration); customer diversification; and regulatory regime diversification.⁹

14
 15 The size of a company can be a barrier to fluid access to capital markets (*i.e.*, liquidity
 16 risk). Investors require compensation for the lack of marketability and liquidity of their
 17 investments. If no compensation is provided, then investors, or at least sophisticated
 18 investors, shy away.

19
 20 **Q. IS THE IMPACT OF SIZE COMMONLY RECOGNIZED?**

21 A. Yes, the National Association of Regulatory Utility Commissioners ("NARUC"), as well
 22 as most good financial texts, recognizes that size affects relative business risk. Liquidity
 23 risk and the existence of the small firm effect relating to business risk of small firms are
 24 well-documented in financial literature.¹⁰ Investors' expectations reflect the highly-
 25 publicized existence of the small firm effect. For example, many mutual funds classify
 26 their investment strategy as small capitalization in an attempt to profit from the existence
 27 of the small firm effect.

⁹ Standard & Poor's, Corporate Ratings Criteria, Utilities: Key Credit Factors: Business and Financial Risks in The Investor-Owned Utilities Industry, Nov. 26, 2008.

¹⁰ Banz, Rolf, W. "The Relationship Between Return and Market Value of Common Stocks," *Journal of Financial Economics*, 9:3-18 1981. For subsequent studies see Fama and French, etc.

As previously discussed, S&P recognizes that size plays a role in credit ratings. Standard & Poor's has no minimum size criterion for any given rating level. However, size turns out to be significantly correlated to ratings. The reason: size often provides a measure of diversification, and/or affects competitive position. . . . Small companies are, almost by definition, more concentrated in terms of product, number of customers, or geography. In effect, they lack some elements of diversification that can benefit larger companies. To the extent that markets and regional economies change, a broader scope of business affords protection. This consideration is balanced against the performance and prospects of a given business. . . . In addition, lack of financial flexibility is usually an important negative factor in the case of very small companies. Adverse developments that would simply be a setback for companies with greater resources could spell the end for companies with limited access to funds.¹¹

As shown on Schedule 9, size plays a role in the composition of investors, and hence liquidity. In 2018, about 116% of the Water Group's shares traded while the larger companies comprising the S&P Utilities had a much higher trading volume of 193%. Insiders¹² hold more than seven times more, as a percent to total, of the Water Group's shares than the S&P Utilities. Currently, only about 70% of the Water Group shares are held by institutions¹³ while the larger companies comprising the S&P Utilities had much higher institutional holdings of 82%. Due to small size and less interest by financial institutions, fewer security analysts follow the Comparable Group and none follow PUI.

The lack of trading activity may affect the cost of equity estimates for small entities such as PUI and the Water Group. When stock prices do not change because of inactive trading activity, estimates of dividend yield for use in a dividend cash flow model and beta estimates for use in the capital asset pricing model are affected. In a stock market that is generally up, the beta estimates for the Comparable Companies may be understated due to thin trading.

¹¹ *Standard & Poor's, Corporate Ratings Criteria 2006*; pg. 22.

¹² An insider is a director or an officer who has a policy-making role or a person who is directly or indirectly the beneficial owner of more than 10% of a certain company's stock.

¹³ Institutional holders are those investment managers having a fair market value of equity assets under management of \$100 million or more. Certain banks, insurance companies, investment advisers, investment companies, foundations and pension funds are included in this category.

Q. DO PUI AND THE COMPARABLE COMPANIES HAVE SIMILAR OPERATING RISKS?

A. Yes. From an operations standpoint, PUI and the Comparable Companies have similar risks and are indistinguishable. Both are required to meet Clean Water Acts and Safe Drinking Water Act requirements and are also required to provide safe and reliable services to their customers and comply with Commission regulations.

Q. IS THERE ANY SINGLE MEASURE THAT BEST SHOWS INVESTMENT RISK FROM A COMMON STOCKHOLDER'S PERSPECTIVE?

A. No. However, from a creditor's viewpoint, the best measure of investment risk is debt rating. The debt rating process generally provides a good measure of investment risk for common stockholders because the factors considered in the debt rating process are usually relevant factors that a common stock investor would consider in assessing the risk of an investment. Credit rating agencies, such as S&P, assess the risk of an investment into two categories based on: fundamental business analysis; and financial analysis.¹⁴ The business risk analysis includes assessing: Country risk; industry risk; competitive position; and profitability/peer group comparisons. The financial risk analysis includes assessing: accounting; financial governance and policies/risk tolerance; cash flow adequacy; capital structure/asset protection; and liquidity/short-term factors.

Q. WHAT IS THE BOND RATING OF PUI AND THE COMPARABLE GROUP?

A. Page 1 of Schedule 10 shows the average bond/credit rating Comparable Group. The Comparable Group has an A credit profile and PUI does not have bonds rated. The major bond rating/credit rating agencies append modifiers, such as +, - for S&P and 1, 2, and 3 for Moody's Investors Service ("Moody's") to each generic rating classification. For example, an "A" credit profile is comprised of three subsets such as A+, A, A- for S&P or A1, A2 or A3 for Moody's. The modifier of either "+" or "1" indicates that the obligation ranks in the higher end of its generic rating category; the modifier "2" indicates a mid-range

¹⁴ *Standard & Poor's, Corporate Ratings Criteria*, General: Criteria Methodology: Business Risk/Financial Risk Matrix Expanded, May 27, 2009 and *Standard & Poor's, Criteria Corporates General: Corporate Methodology*, November 19, 2013.

ranking; and the modifier of “-” or “3” indicates a ranking in the lower end of that generic rating category.

S&P and Moody’s publish financial benchmark criteria necessary to obtain a bond rating for different types of utilities. As a generalization, the higher the perceived business risk, the more stringent the financial criteria so the sum of the two, business risk and financial criteria, remains the same.

Q. WHAT ARE SOME FINANCIAL BENCHMARKS APPLIED BY CREDIT RATING AGENCIES FOR RATING PUBLIC UTILITY DEBT?

A. S&P describes their range of financial benchmarks as

Risk-adjusted ratio guidelines depict the role that financial ratios play in Standard & Poor’s rating process, since financial ratios are viewed in the context of a firm’s business risk. A company with a stronger competitive position, more favorable business prospects, and more predictable cash flows can afford to undertake added financial risk while maintaining the same credit rating. The guidelines displayed in the matrices make explicit the linkage between financial ratios and levels of business risk.¹⁵

Q. WHAT OTHER INFORMATION IS SHOWN ON SCHEDULE 10?

A. Page 2 of Schedule 10 summarizes the application of S&P’s and Moody’s measures of financial risk for PUI and the Comparable Group. S&P’s and Moody’s measures of financial risk are broader than the traditional measure of financial risk (i.e., leverage). Besides reviewing amounts of leverage employed, S&P and Moody’s also focuses on earnings protection and cash flow adequacy.

As is evident from the information shown on page 2 of Schedule 10, for the five years ending in 2018 and for the year 2018, PUI’s cash flow adequacy ratios were lower than the Comparable Companies in most instances. Comparing the PUI and the Water Group’s measures of cash flow adequacy shows that the Water Group has experienced a higher level of cash flow adequacy as PUI indicating that PUI is a greater investment risk than the Water Group. Prospectively, based upon the Company’s construction program, the Company’s

¹⁵ Standard & Poor’s Corporate Rating Criteria, 2000.

1 ratios are likely to be strained. Based solely upon PUI's historical ratios, it is my opinion
2 that PUI's credit profile is lower than the Comparable Companies.

3
4 Further, based solely upon PUI's size, it is my opinion that PUI's credit profile is lower
5 than the Comparable Groups'. Based on PUI's small size, it is highly likely that PUI's
6 credit profile is below BBB (i.e., BB). An analysis of corporate credit ratings, shown on
7 page 4 of Schedule 10, indicates that there is an 90% (100%-0%-0%-4%-6%=90%) chance
8 that PUI's credit profile falls below BBB based on their small size alone. As S&P has
9 stated, size is significantly correlated to credit ratings. An analysis of corporate credit
10 ratings found The York Water Company to be the smallest utility with a credit rating.
11 Their credit rating is only A- despite having a capitalization comprised of more than \$220
12 million and a common equity ratio in excess of 58%.

13
14 In order to compete with the Comparable Group for capital, in the future, it will be
15 necessary for PUI to achieve higher returns on equity, and increased cash flow just to
16 maintain a similar credit quality.

17 S&P has stated:

18 ... low authorized returns may affect the industry's ability to attract
19 necessary capital to develop new water supplies and upgrade the quality of
20 existing supplies . . . Traditional ratemaking policy has not provided
21 sufficient credit support during the construction cycle of the electric
22 industry over the past 15 years. To avoid a repeat in the water industry,
23 regulators must be aware of the increased challenges the industry faces.¹⁶
24 (Emphasis added)
25

26 Investors will not provide the equity capital necessary for increasing the amount of
27 common equity in a capital structure unless the regulatory authority allows an adequate
28 rate of return on the equity.¹⁷

¹⁶ Standard & Poor's CreditWeek, May 25, 1992.

¹⁷ National Association of Regulatory Utility Commissioners, loc. cit.

Q. WHAT DO YOU CONCLUDE FROM THE VARIOUS MEASURES OF INVESTMENT RISK INFORMATION YOU HAVE TESTIFIED TO?

A. A summary of my conclusions regarding the risk analyses discussed previously is shown in Table 5. Overall, the information summarized in Table 5 indicates that PUI has higher investment risk than the Water Group.

<u>Summary of Risk Analyses</u>		
	PUI	Water Group Followed by Analysts
1. Business Risk:		
2. Country Risk	Similar Risk Level	
3. Industry Risk	Similar Risk Level	
4. Competitive Position	Similar Risk Level	
5. Profitability/Peer Group Comparisons		Higher Risk Level
6. Capitalization Ratios & Financial Risk (Leverage)*	Similar Risk Level	
7. Debt Cost Rate*	Similar Risk Level	
8. Relative Size:		
9. Regulatory Diversification	Higher Risk Level	
10. Economic Diversification	Higher Risk Level	
11. Demographic Diversification	Higher Risk Level	
12. Diversification of Weather Conditions	Higher Risk Level	
13. Customer Concentration of Revenues	Higher Risk Level	
14. Capital Intensity	Higher Risk Level	
15. Capital Recovery		Higher Risk Level
16. Lower Liquidity:		
17. Institutional Holdings	Higher Risk Level	
18. Insider Holdings	Higher Risk Level	
19. Percentage of Shares Traded	Higher Risk Level	
20. Required To Meet Clean Water Acts and Safe Drinking Water Act	Similar Risk Level	
21. Credit Market Financial Risk Metrics	Higher Risk Level	
22. Cash Flow Adequacy	Higher Risk Level	
23. Credit Rating / Credit Profile	Higher Risk Level	
* - Based on recommended capital structure for rate making purposes. Comment: The terms "Similar Level " indicates same amount of risk and the terms "Higher Level " indicates greater risk.		

Table 5
CAPITAL COST RATES

Q. WHAT INFORMATION IS SHOWN ON SCHEDULE 11?

A. Schedule 11 reviews long-term and short-term interest rate trends. Long-term and short-term interest rate trends are reviewed to ascertain the “sub-flooring” or “basement” upon which the Comparable Companies’ common equity market capitalization rate is built.

1 Based upon the settled yields implied in the Treasury Bond future contracts and the long-
2 term and recent trends in spreads between long-term government bonds and A-rated public
3 utility bonds available to me at the time Schedule 11 was prepared, I conclude that the
4 market believes that if the Comparable Companies issued new long-term bonds near term,
5 they would be priced to yield about 3.6% based upon a credit profile of "A." Further, it
6 is reasonable to conclude the market anticipates that long-term government bonds will be
7 priced to yield about 2.4%, near term.

8
9 However, prospectively, over the next couple of years, forecasters believe capital costs
10 rates may increase substantially from their current levels. Former Federal Reserve
11 Chairman Alan Greenspan warned that the bond market is on the edge of a collapse that
12 would bring much higher interest rates and may also impact stock prices.

13 In a CNBC interview, the longtime central bank chief said the prolonged
14 period of low interest rates is about to end and, with it, a bull market in fixed
15 income that has lasted more than three decades.

16 "The current level of interest rates is abnormally low and there's only one
17 direction in which they can go, and when they start they will be rather
18 rapid," Greenspan said on "Squawk Box."

19 That low interest rate environment has been the product of current monetary
20 policy at the institution he helmed from 1987-2006. The Fed took its
21 benchmark rate to near zero during the financial crisis and kept it there for
22 seven years after.

23 Since December 2015, the Fed has approved four rate hikes, but government
24 bond yields remained mired near record lows.

25 Greenspan did not criticize the policies of the current Fed. But he warned
26 that the low rate environment can't last forever and will have severe
27 consequences once it ends.

28 "I have no time frame on the forecast," he said. "I have a chart which goes
29 back to the 1800s and I can tell you that this particular period sticks out. But
30 you have no way of knowing in advance when it will actually trigger."

31 One point he did make about timing is it likely will be quick and take the
32 market by surprise.

33 "It looks stronger just before it isn't stronger," he said. Anyone who thinks
34 they can forecast when the bubble will break is "in for a disastrous"
35 experience."

36 In addition to his general work at the Fed, which also featured an extended
37 period of low rates though nowhere near their current position, Greenspan
38 is widely known for the "irrational exuberance" speech he gave at the
39 American Enterprise Institute in 1996. The speech warned about asset
40 prices and said it is difficult to tell when a bubble is about to burst.

1 Those remarks foreshadowed the popping of the dot-com bubble, and the
 2 phrase has found a permanent place in the Wall Street lexicon.
 3 “You can never be quite sure when irrational exuberance arises,” he told
 4 CNBC. “I was doing it as part of a much broader speech and talking about
 5 the analysis of the markets and the like, and I wasn’t trying to focus short
 6 term. But the press loved that term.”¹⁸
 7

8 Since October 2008, the Federal Reserve has been monetizing US Treasury debt to
 9 artificially suppress interest rates through expansionary money policies. The Federal
 10 Reserve, with effectively unlimited money at its disposal, intervenes at any time it wishes,
 11 in whatever volume it wishes, to make sure that Treasury bond and bill prices and yields
 12 are exactly what the Federal Reserve wants them to be. The US Treasury bond market, and
 13 mortgage market, has become an artificial market with no connection to objective risk and
 14 interest rates.
 15

16 In August 2011, the Federal Reserve began “Operation Twist.” Under “Operation Twist,”
 17 the Federal Reserve began buying \$400 billion of long-dated or long-term US Treasury
 18 debt, financed by selling short-term US Treasury debt with three years to go or less. The
 19 goal of “Operation Twist” was to try to drive long-term rates lower, which the Federal
 20 Reserve thought would help the mortgage market. This process has created an artificial
 21 demand for the US Treasury debt themselves, and easily drives interest rates artificially
 22 lower and deceives investors into believing US Treasury debt are safe with wide demand.
 23 This has resulted in the entire capital system being impacted by the Federal Reserve’s
 24 distortion of the price of risk.

25 In the real world of economics, the borrower pays an interest rate to a lender,
 26 who makes money (interest) by taking on the risk of lending and deferring
 27 gratification. The lender is willing to not spend his money now. In a free
 28 market economy, interest rates are essentially a price put on money, and
 29 they reflect the time preference of people. Higher interest rates reflect a high
 30 demand for borrowing and lower savings. But the higher rates
 31 automatically correct this situation by encouraging savings and
 32 discouraging borrowing. Lower interest rates will work the opposite way.
 33 When the government/central bank tampers with interest rates, savings and
 34 lending are distorted, and resources are misallocated. This is evident in

¹⁸ CNBC, [Greenspan: Bond Bubble About to Break Because of ‘Abnormally Low’ Interest Rates](https://www.cnbc.com/2017/08/04/greenspan-bond-bubble-about-to-break-because-of-abnormally-low-interest-rates.html), 8/4/17, <https://www.cnbc.com/2017/08/04/greenspan-bond-bubble-about-to-break-because-of-abnormally-low-interest-rates.html> , (8/4/17).

1 looking back on the housing bubble. The artificially low interest rates
 2 signaled that there was a high amount of savings. But it was a false signal.
 3 There was also a signal for people to borrow more. Again, it was a false
 4 signal. As these false signals were revealed, the housing boom turned into
 5 a bust.¹⁹
 6

7 When there is a crisis in the markets, such as a financial meltdown, market participants
 8 usually sell off and move their money to a safer place; fleeing from illiquid, low quality
 9 investments to liquid, high quality investments. This flight to quality reflects a collapse of
 10 confidence in the financial system and is most evident in short-term interest rates.
 11 Prospectively the capital markets will be affected by the upcoming unprecedented large
 12 Treasury financings. Investors provide capital based upon risk and return opportunities
 13 and investors will not provide common equity capital when higher risk-adjusted returns are
 14 available.
 15

16 **Q. ARE THERE OTHER INDICATIONS THAT FORECASTERS BELIEVE CAPITAL COSTS RATES**
 17 **MAY INCREASE SUBSTANTIALLY FROM THEIR CURRENT LEVELS?**

18 A. Yes, consensus forecasts show that interest rates are expected to increase substantially in
 19 the next few years. Table 6 shows the forecasted increase in interest rates published in the
 20 December 1, 2019 Blue Chip Consensus Forecasts for the period 2021 to 2023. As shown

<u>Blue Chip Financial Forecasts Long-Range Survey (2/1/20)</u>				
	Latest Qtr (2/1/20)	Consensus Forecasts (12/1/19)		
	<u>4Q 2019</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
<u>Interest Rates</u>				
Prime Rate	4.83	4.51	4.89	5.15
3-mo. Treasury Bills	1.61	1.55	1.84	2.04
10 Year Notes	1.79	2.31	2.55	2.80
30 Year Notes	2.26	2.75	2.98	3.25
Aaa Corporate Bond Yield	3.13	3.72	4.03	4.25
Baa Corporate Bond Yield	3.83	4.71	4.94	5.18

¹⁹ Pike, Geoffrey "The Threat of Negative Interest Rates," Wealth Daily, May 30, 2014,
<http://www.wealthdaily.com/articles/the-threat-of-negative-interest-rates/5185>, (6/03/2014)

in Table 6, consensus forecasts show interest rates are expected to increase over 85 basis points from current levels. If interest rates were to increase as predicted, investors will not provide common equity capital when higher risk-adjusted returns are available.

COMMON EQUITY COST RATE ESTIMATE

Q. WHAT IS THE BEST METHOD OF ESTIMATING COMMON EQUITY COST RATES?

A. There is no single method (model) suitable for estimating the cost rate for common equity. While a single investor may rely solely upon one model in evaluating investment opportunities, other investors rely on different models. Most sophisticated investors who use an equity valuation model rely on many models in evaluating their common equity investment alternatives. Therefore, the average price of an equity security reflects the results of the application of many equity models used by investors in determining their investment decisions.

The application of any single model to estimate common equity cost rates is not appropriate because the security price for which the equity cost rate is being estimated reflects the application of many models used in the valuation of the investment. That is, the price of any security reflects the collective application of many models. Accordingly, if only one model is used to estimate common equity cost rates, that cost rate will most likely be different from the collective market's cost rates because the collective valuation in the market reflects more than one method.

Noted financial texts, investor organizations and professional societies all endorse the use of more than one valuation method. "We endorse the dividend discount model, particularly when used for establishing companies with consistent earnings power and when used along with other valuation models. It is our view that, in any case, an investor should employ more than one model."²⁰ (Emphasis added.)

²⁰ Sidney Cottle, Roger F. Murray and Frank E. Block, Graham and Dodd's Securities Analysis 5th Edition, McGraw-Hill, Inc., 1988, p. 568.

1 The American Association of Individual Investors state, “No one area of investment is
2 suitable for all investors and no single method of evaluating investment opportunities has
3 been proven successful all of the time.”²¹

4
5 In their study guide, the National Society of Rate of Return Analysts state, “No cost of
6 equity model or other concept is recommended or emphasized, nor is any procedure for
7 employing any model recommended . . . it remains important to recognize that alternative
8 methods exist and have merit in cost of capital estimation. To this end, analysts should be
9 knowledgeable of a broad spectrum of cost of capital techniques and issues.”²²

10
11 Several different models should be employed to measure accurately the market-required
12 cost of equity reflected in the price of stock. Therefore, I used three recognized methods
13 including the DCF shown on Schedule 12, the CAPM shown on Schedule 17, and the RP
14 shown on Schedule 18.

15 16 **DISCOUNTED CASH FLOW**

17 18 **Q. PLEASE EXPLAIN THE DISCOUNTED CASH FLOW MODEL.**

19 A. The DCF is based upon the assumption that the price of a share of stock is equal to a future
20 stream of cash flows to which the holder is entitled. The stream of cash flows is
21 discounted at the investor-required cost rate (cost of capital).

22
23 Although the traditional DCF assumes a stream of cash flow into perpetuity, a termination,
24 or sale price can be calculated at any point in time. Therefore, the return rate to the
25 stockholder consists of cash flow (earnings or dividends) received and the change in the
26 price of a share of stock. The cost of equity is defined as:

²¹ Editorial Policy, AAII Journal, American Association of Individual Investors, Volume 18, No. 1, January 1996, p. 1.

²² David C. Parcell, The Cost of Capital - A Practitioners Guide, National Society of Rate of Return Analysts, 1995 Edition.

1 ...the minimum rate of return that must be earned on equity finance and
 2 investments to keep the value of existing common equity unchanged. This
 3 return rate is the rate of return that investors expect to receive on the
 4 Company's common stock . . . the dividend yield plus the capital gains yield
 5 . . . ²³(Emphasis added)
 6

7 **Q. PLEASE EXPLAIN HOW YOU CALCULATED YOUR DIVIDEND YIELD IN THE DCF SHOWN ON**
 8 **SCHEDULE 12.**

9 A. As shown on page 1 of Schedule 12, I used the average dividend yield of 1.7% for the
 10 Water Group. The individual dividend yields are shown on page 2 of Schedule 12 and are
 11 based upon the most recent months' yield, January 2020, and the twelve-month average
 12 yield, ending January 2020. The second input to a market DCF calculation is the
 13 determination of an appropriate share price growth rate.
 14

15 **Q. WHAT SOURCES OF GROWTH RATES DID YOU REVIEW?**

16 A. I reviewed both historical and projected growth rates. Schedule 13 shows the array of
 17 projected growth rates for the Comparable Companies that are published. Specific
 18 historical growth rates are shown for informational purposes because I believe the
 19 meaningful historical growth rates are already considered when analysts arrive at their
 20 projected growth rates. Nonetheless, some investors may still rely on historical growth
 21 rates.
 22

23 **Q. PLEASE EXPLAIN THE SOURCES OF THE PROJECTED GROWTH RATES SHOWN ON**
 24 **SCHEDULE 13.**

25 A. I relied upon four sources for projected growth rates, First Call, S&P, Zacks Investment
 26 Research and Value Line.²⁴

²³ J. Fred Weston and Eugene F. Brigham, Essentials of Managerial Finance, 3rd ed. (The Dryden Press), 1974, p. 504.

²⁴ With the exception of Value Line, the earnings growth rate projections are consensus estimates five-year EPS estimates. These consensus estimates are compiled from more than 1,700 financial analysts and brokerage firms nationwide. It should be noted that none of the consensus forecasts provides projected DPS estimates. Value Line publishes projected Cash flow, EPS and DPS five-year growth projections as well.

Q. DID YOU REVIEW ANY OTHER GROWTH RATES BESIDES THOSE SHOWN ON SCHEDULE 13?

A. Yes. I reviewed EPS growth rates reflecting changes in return rates on book common equity (ROE) over time. I summarized recent ROEs on page 1 of Schedule 14, and compared those to the Water Group's higher levels projected to be achieved by Value Line, as shown on page 2 of Schedule 14. ROEs increase when EPS grows at much higher/faster rates than book value.

I also reviewed industry specific average projected growth rates that are published by Zacks for the industries in which the Comparable Companies operate. According to Zacks, the Water Group's industry is projected to have EPS growth rates that average 9.2% over the next five years.

Q. WHAT DO YOU CONCLUDE FROM THE GROWTH RATES YOU HAVE REVIEWED?

A. Table 7 summarizes some of the various growth rates reviewed.

<u>Summary of Growth Rates</u>	
	<u>Water Group</u>
Projected 5 Year Growth in EPS	7.4
Actual 5 Year Growth in EPS	7.2
Projected 5 Year Growth in DPS	7.4
Projected 5 Year Growth in EPS for the industry	9.2

Table 7

Academic studies suggest that growth rate conclusions should be tested for reasonableness against long-term interest rate levels. Further, the minimum growth rate must at least exceed expected inflation levels. Otherwise, investors would experience decreases in the purchasing power of their investment. Finally, the combined result of adding the growth rate to the market value dividend yield must provide a sufficient margin over yields of public utility debt.

1 **Q. WHAT METHOD DID YOU USE TO ARRIVE AT YOUR GROWTH RATE CONCLUSION?**

2 A. No single method is necessarily the correct method of estimating share value growth. It
3 is reasonable to assume that investors anticipate that the Water Group's current ROE will
4 expand to higher levels. The published historical earnings growth rates for the Water
5 Group averages 7.2%. Because there is not necessarily any single means of estimating
6 share value growth, I considered all of this information in determining a growth rate
7 conclusion for the Comparable Companies.

8
9 Moreover, while some rate of return practitioners would advocate that mathematical
10 precision should be followed when selecting a growth rate, the fact is that investors do not
11 behave in the same manner when establishing the market price for a stock. Rather,
12 investors consider both company-specific variables and overall market sentiment such as
13 inflation rates, interest rates and economic conditions when formulating their capital gains
14 expectations. This is especially true when one considers the relatively meaningless
15 negative growth rates. That is, use of a negative growth rate in a DCF implies that
16 investors invest with the expectation of losing money.

17
18 The range of growth rates previously summarized supports the reasonableness of an
19 expected 7.4% growth rate for the Water Group based primarily on the projected five-year
20 growth rates and considering the Water Group's industry projected EPS growth rates of
21 9.2%. Like the projected growth rates, this investor-expected growth rate of 7.4% is based
22 on a survey of projected and historical growth rates published by established entities,
23 including First Call, S&P, Zacks Investment Research and Value Line. Use of
24 information from these unbiased professional organizations provides an objective
25 estimation of investor's expectations of growth. Based on the aforesaid, all growth rates
26 for the Comparison Companies have been considered and have been given weight in
27 determining a 7.4% growth rate for the Water Group.

28
29 **Q. WHAT IS YOUR MARKET VALUE DCF ESTIMATE FOR THE COMPARABLE COMPANIES?**

30 A. The market value DCF cost rate estimate for the Water Group is 9.2%, as detailed on page 1
31 of Schedule 12.

1 **Q. ARE THERE OTHER CONSIDERATIONS THAT SHOULD BE TAKEN INTO ACCOUNT IN**
 2 **REVIEWING A MARKET VALUE CAPITALIZATION DCF COST RATE ESTIMATE?**

3 A. Yes. It should be noted that although I recommend specific dividend yields for the
 4 Comparable Group, I recommend that less weight be given to the resultant market value
 5 DCF cost rate due to the market's current market capitalization ratios and the impact that
 6 the market-to-book ratio has on the DCF results. The Comparable Companies' current
 7 market-to-book ratios of 383% and low dividend yields are being affected by the
 8 aforementioned policy of the Federal Reserve that has resulted in the mispricing of capital
 9 due to artificial interest rates, not DCF fundamentals.

10
 11 Although the DCF cost for common equity appears to be based upon mathematical
 12 precision, the derived result does not reflect the reality of the marketplace since the model
 13 proceeds from unconnected assumptions. The traditional DCF derived cost rate for
 14 common equity will continuously understate or overstate investors' return requirements as
 15 long as stock prices continually sell above or below book value. A traditional DCF model
 16 implicitly assumes that stock price will be driven to book value over time. However, such
 17 a proposition is not rational when viewed in the context of an investor purchasing stock
 18 above book value. It is not rational to assume that an investor would expect share price to
 19 decrease 74% ($100\% \div 383\% = 26\% - 100\% = 74\%$) in value to equal book value.

20
 21 Utility stocks do not trade in a vacuum. Utility stock prices, whether they are above or
 22 below book value, reflect worldwide market sentiment and are not reflective of only one
 23 element.

24
 25 **Q. WHAT DO YOU MEAN BY YOUR STATEMENT THAT UTILITY STOCKS ARE NOT TRADED IN A**
 26 **VACUUM?**

27 A. Utility stocks cannot be viewed solely by themselves. They must be viewed in the
 28 context of the market environment. Table 8 summarizes recent market-to-book ratios
 29 ("M/B") for well-known measures of market value reported in the February 24, 2020 issue
 30 of Barron's and the Water Group's average M/B as shown on page 1 of Schedule 14.

	<u>M/B Ratios(%)</u>
Dow Jones Industrials	445
Dow Jones Transportation	337
Dow Jones Utilities	256
S&P 500	392
S&P Industrials	513
Vs.	
Water Group	383

Table 8

Utility stock investors view their investment decisions compared with other investment alternatives, including those of the various market measures shown in Table 8.

Q. HOW DOES A TRADITIONAL DCF IMPLICITLY ASSUME THAT MARKET PRICE WILL EQUAL BOOK VALUE?

A. Under traditional DCF theory, price will equal book value ($M/B=1.00$) only when a company is earning its cost of capital. Traditional DCF theory maintains that a company is under-earning its cost of capital when the market price is below book value ($M/B<1.00$), while a company over-earning its cost of capital will have a market price above its book value ($M/B>1.00$). If this were true, it would imply that the capitalistic free-market is not efficient because the overwhelming majority of stocks would currently be earning more than their cost of capital. Table 8 shows that most stocks sell at an M/B that is greater than 1.0.

Q. PLEASE EXPLAIN WHY SUCH A PHENOMENON WOULD SHOW THAT THE CAPITALISTIC FREE-MARKET IS NOT EFFICIENT.

A. Historically, the S&P Industrials, which represented approximately 400 companies, have sold at an M/B as low as 1.0 only one time out of the 53-year period 1947-1999. Based upon the traditional DCF assumption, which suggests that companies with M/Bs greater than 1.0 earn more than their cost of capital, this data would suggest that the S&P Industrial companies have earned more than their cost of capital while competing in a competitive

environment over the 53-year period. In a competitive market, new companies would continually enter the market up to the point that the earnings rate was at least equal to their cost of capital.

During this period the S&P Industrials sold at an average M/B of 223.7% while experiencing a ROE of 15.7% over a period in which interest rates averaged 7.2%. It is important to note that the average ROE of 15.7% is relative to a common equity ratio of more than 60% for the S&P Industrials over many years.

Q. WHAT IS THE SIGNIFICANCE OF INDUSTRIAL COMPANIES' M/B AND THE COST OF CAPITAL FOR A WATER UTILITY?

A. As stated previously, utility stocks do not trade in a vacuum. They must compete for capital with other firms including industrial stocks. Over time, there has been a relationship between M/Bs of industrial stocks and utility stocks. Although industrial stocks have sold at a higher multiple of book value than utility stocks, both have tracked in similar directions. Because utility and industrial stock prices relative to book values move in similar directions, it is irrational to conclude that stock prices that are different from book value, either higher or lower, suggests that a firm is over-or under-earning its cost of capital when competitive free-markets exist.

Q. DOES THE MARKET VALUE DCF PROVIDE A REASONABLE ESTIMATE OF THE WATER GROUP'S COMMON EQUITY COST RATE?

A. No, the DCF only provides a reasonable estimate of the Comparable Group's common equity cost rate when their market price and book value are similar (M/B=100%).²⁵ A DCF will overstate a common equity cost rate when M/Bs are below 100% and understate when they are above 100%. Since the Comparable Group's current M/Bs average 383%, the DCF understates their common equity cost rate. Schedule 15 provides a numerical illustration of the impact of M/Bs on investors' market returns and DCF returns. The reason that DCF understates or overstates investors' return requirements depending upon

²⁵ Roger A Morin, Regulatory Finance - Utilities' Cost of Capital, Public Utility Reports, Inc., 1994, pp. 236-237.

M/B levels is because a DCF-derived equity cost rate is applied to a book value rate base while investors' returns are measured relative to stock price levels. Based upon this, I recommend that less weight be given to the market value DCF cost rate unless the increased financial risk, resulting from applying a market value cost rate to a book value, is accounted for.

Q. HOW DO YOU RESOLVE THE FINANCIAL RISK DIFFERENCE BETWEEN MARKET VALUE COST RATES AND BOOK VALUE COST RATES?

A. The basic proposition of financial theory regarding the economic value of a company is based on market value. That is, a company's value is based on its market value weighted average cost of capital.²⁶ Accordingly, the market value derived cost rate reflects the financial risk or leverage associated with capitalization ratios based on market value, not book value. As shown on page 1 of Schedule 16, for the Water Group there is a large difference in leverage as a result of the average \$4,679 million difference in market value common equity and book value common equity. This difference in market values and book values results in debt/equity ratios based on market value of 20.0%/80.0% (debt/equity) verses 47.0%/53.0% (debt/equity) based on book value as shown on page 1 of Schedule 16.

Differences in the amount of leverage employed can be quantified based upon the Comparable Group's leveraged beta being "unleveraged" through the application of the "Hamada Formula". The details of the model are shown on page 2 of Schedule 16. For example, the inputs to the formula for the Water Group market value capitalization consist of their leveraged beta of 0.66, debt ratio of 19.6%, preferred stock ratio of 0.0%, common equity ratio of 80.4% and combined tax rate of 28.00%. The group's unleveraged beta is determined to be 0.56 through the use of the following Hamada formula:

²⁶ Shannon P. Pratt, Cost of Capital, John Wiley & Sons, Inc., 1998, pp. 45-46.

$$B_l = B_u (1 + (1 - t) D/E + P/E)$$

where:

B_l = observed, leveraged beta

B_u = calculated, unleveraged beta

t = income tax rate

D = debt ratio

P = preferred stock ratio

E = common equity ratio

Applying the unleveraged beta of 0.56 along with the Water Group's book value capitalization ratios of 46.7% long-term debt, 0.1% preferred stock and 53.2% common equity and combined tax rate of 28.00% results in a leveraged beta of .84 applicable to the group's book value capitalization. Based upon the Water Group's risk premium of 5.9% and the difference between Water Group's market value leveraged beta, their book value leveraged beta of 0.26 (0.92 - 0.66) indicates that the Water Group's common equity cost rate must be increased by 1.53 (0.26 x 5.9 = 1.53) in recognition of their book value's exposure to more financial risk.

Q. IS THERE ANOTHER WAY TO REFLECT THE FINANCIAL RISK DIFFERENCE THAT EXISTS AS A RESULT OF MARKET CAPITALIZATION RATIOS BEING SIGNIFICANTLY DIFFERENT FROM BOOK VALUE CAPITALIZATION RATIOS?

A. Yes, generally speaking. Although it is possible to know the direction of a financial risk adjustment on common equity cost rate, a specific quantification of financial risk differences is very difficult. Although the end result of a financial risk adjustment is very subjective and specific quantification very difficult, the direction of the adjustment is clearly known. However, hypothetically if the Comparable Group's debt were rated based on market value debt ratios they would command an Aaa rating. The Comparison Group currently has bonds rated A based upon their book value debt ratios. The yield spread on a bond rated Aaa versus A rated bonds averages 35 basis points or 0.35% as shown on page 3 of Schedule 16.

The end result of the application of the Hamada Model and the bond yield spread indicates that the Water Group market value common equity cost rate equity cost rate should be

adjusted upward by at least 0.9% (1.5% hamada est. + 0.3% yield spread = 1.8% ÷ 2 = 0.9%) since it is going to be applied to a book value.

Accounting for the increased amount of leverage between market value derived DCF cost rates and book value cost rates indicates a book value DCF cost rate of 10.10% for the Water Group (9.2% + 0.9% = 10.10%).

CAPITAL ASSET PRICING MODEL

Q. PLEASE BRIEFLY DESCRIBE THE THEORY OF THE CAPITAL ASSET PRICING MODEL.

A. The CAPM is based upon the assumption that investors hold diversified portfolios and that the market only recognizes or rewards non-diversifiable (or systematic) risk when determining the price of a security because company-specific risk (or non-systematic) is removed through diversification. Further, investors are assumed to require additional or higher returns for assuming additional or higher risk. This assumption is captured by using a beta that provides an incremental cost of additional risk above the base risk-free rate available to investors. The beta of a security reflects the market risk or systematic risk of the security relative to the market. The beta for the market is always equal to 1.00; therefore, a company whose stock has a beta greater than 1.00 is considered riskier than the market, and a company with a beta less than 1.00 is considered less risky than the market. The base risk-free rate is assumed to be a U.S. Government treasury security because they are assumed to be free of default risk.

Q. WHAT RISK-FREE RATE AND BETA HAVE YOU USED IN YOUR CAPM CALCULATION?

A. The risk-free rate used in CAPM should have approximately the same maturity as the life of the asset for which the cost rate is being determined. Because utility assets are long-lived, a long-term Treasury Bond yield serves as an appropriate proxy. Previously, I estimated an appropriate risk-free rate of 2.4% based upon the recent and forward long-term Treasury yields. I used the average beta of 0.66 for the Water Group as shown on page 1 of Schedule 17. However, as stated previously, the Comparable Group's betas are understated due to their small size which affects their stock price changes.

1 **Q. AFTER DEVELOPING AN APPROPRIATE BETA AND RISK-FREE RATE, WHAT ELSE IS**
2 **NECESSARY TO CALCULATE A CAPM DERIVED COST RATE?**

3 A. A market premium is necessary to determine a traditional CAPM derived cost rate. The
4 market return rate is the return expected for the entire market. The market premium is
5 then multiplied by the company specific beta to capture the incremental cost of additional
6 risk (market premium) above the base risk-free rate (long-term treasury securities) to
7 develop a risk adjusted market premium. For example, if you conclude that the expected
8 return on the market as a whole is 15% and further assume that the risk-free rate is 8%,
9 then the market premium is shown to be 7% ($15\% - 8\% = 7\%$).

10
11 Further, assume there are two companies, one of which is considered less risky than the
12 market, and therefore has a beta of less than 1.00 or 0.80. The second company has a beta
13 that is greater than 1.00 or 1.20, and is therefore considered riskier than the market. By
14 multiplying the hypothetical 7.0% market premium by the respective betas of 0.80 and
15 1.20, risk adjusted market premiums of 5.6% ($7.0\% \times 0.80$) and 8.4% ($7.0\% \times 1.20$) are
16 shown for the company considered less risky than the market and for the company
17 considered riskier than the market, respectively.

18
19 Adding the assumed risk-free rate of 8% to the risk adjusted market premiums results in
20 the CAPM derived cost rates of 13.6% ($5.6\% + 8.0\%$) for the less risky company and 16.4%
21 ($8.4\% + 8.0\%$) for the company considered of greater risk than the market. In fact, the
22 result of this hypothetical CAPM calculation shows that: (1) the least risky company, with
23 the beta of 0.80, has a cost rate of 13.6%; (2) the market, with the beta of 1.00, has a cost
24 rate of 15.0%; and (3) that the higher risk company, with a beta of 1.20, has a cost rate of
25 16.4%.

26
27 **Q. HOW DID YOU DEVELOP A MARKET PREMIUM FOR YOUR CAPM?**

28 A. The average projected market premium of 9.1% is developed on page 2 of Schedule 17.
29 It is based upon Value Line's average projected total market return for the next three to
30 five years of 11.5% less the risk free rate of 2.4%. I also reviewed market premiums
31 derived from Ibbotson Associates' most recent publication concerning asset returns that

1 show a market premium of 6.9%. The Ibbotson Associates' market premium may be on
2 the low side reflective of the higher interest rate environment found during their study (*i.e.*,
3 5.0%). The Value Line market premium reflects the Federal Reserve's current artificial
4 interest rate levels while the Ibbotson Associates' market premiums reflect a higher interest
5 rate environment.
6

7 **Q. HOW DID YOU ADJUST FOR THE IMPACT THAT SIZE HAS ON THE COMPARABLE GROUP'S**
8 **BETA?**

9 A. The adjustment is reflected in the CAPM size premium. The CAPM size premium is
10 developed on page 4 of Schedule 17. The size premium reflects the risks associated with
11 the Comparable Group's small size and its impact on the determination of their beta. This
12 adjustment is necessary because beta (systematic risk) does not capture or reflect the
13 Comparable Group's small size. I reduced the size premium by the ratio of the
14 Comparison Group's beta to their respective market quartile's beta.
15

16 **Q. WHAT IS THE COMPARISON GROUP'S MARKET COST OF EQUITY BASED UPON YOUR**
17 **CAPM CALCULATION?**

18 A. The CAPM based on Ibbotson Associates' historical market returns shows a market cost
19 rate of 7.8% for the Water Group. The CAPM based on Value Line's projected market
20 returns shows an 9.2% for the Water Group, as shown on page 1 of Schedule 17. The
21 Comparable Group's average market value CAPM of 8.9% is based 25% on the results of
22 the historical market returns and 75% on the projected market returns. Adjusting the
23 market value CAPM based upon the end result of the application of the Hamada Model
24 and the bond yield spread to account for the difference in leverage between market value
25 capitalization ratios and book value ratios discussed previously indicates a cost rate of 9.8%
26 for the Water Group applicable to book value ($8.9\% + 0.9\% = 9.8\%$).

RISK PREMIUM

Q. WHAT IS A RISK PREMIUM?

A. A risk premium is the common equity investors' required premium over the long-term debt cost rate for the same company, in recognition of the added risk to which the common stockholder is exposed versus long-term debtholders. Long-term debtholders have a stated contract concerning the receipt of dividend and principal repayment whereas common stock investors do not. Further, long-term debtholders have the first claim on assets in case of bankruptcy. A risk premium recognizes the higher risk to which a common stock investor is exposed. The risk premium-derived cost rate for common equity is the simplest form of deriving the cost rate for common equity because it is nothing more than a premium above the prospective level of long-term corporate debt.

Q. WHAT IS THE APPROPRIATE ESTIMATED FUTURE LONG-TERM BORROWING RATE FOR THE COMPARABLE COMPANIES?

A. The estimated near term long-term borrowing rate for the Comparable Companies is 3.6% based upon their credit profile that supports an A bond rating.

Q. WHAT IS THE APPROPRIATE RISK PREMIUM TO BE ADDED TO THE FUTURE LONG-TERM BORROWING RATE?

A. To determine a common equity cost rate, it is necessary to estimate a risk premium to be added to the Comparable Group's prospective long-term debt rate. Investors may rely upon published projected premiums; they also rely upon their experiences of investing in ultimately determining a probabilistic forecasted risk premium.

Projections of total market returns are shown on page 2 of Schedule 18. A projected risk premium for the market can be derived by subtracting the debt cost rate from the projected market return as shown on page 2 of Schedule 18. However, the derived risk premium for the market is not directly applicable to the Comparable Companies because they are less risky than the market. The use of 85% of the market's risk is a conservative estimation of their level of risk as compared to the market.

1 The midpoint of the risk premium range is 8.1% and the average for the most recent quarter
 2 is 8.2% as shown on page 2 of Schedule 18. Based on this, a reasonable estimate of a
 3 longer term projected risk premium is 8.2%.

4
 5 **Q. HOW DO INVESTORS' EXPERIENCES AFFECT THEIR DETERMINATION OF A RISK**
 6 **PREMIUM?**

7 A. Returns on various assets are studied to determine a probabilistic risk premium. The most
 8 noted asset return studies and resultant risk premium studies are those performed by
 9 Ibbotson Associates. However, Ibbotson Associates has not performed asset return
 10 studies concerning public utility common stocks. Based upon Ibbotson Associates'
 11 methodology of computing asset returns, I calculated annual returns for the S&P utilities
 12 and bonds for the period 1928-2018. The resultant annual returns were then compared to
 13 determine a recent risk premium from a recent 20-year period, 1999-2018 and subsequent
 14 periods that were each increased by ten years until the entire study period was reviewed
 15 (pages 3 and 4 of Schedule 18).

16
 17 A long-term analysis of rates of return is necessary because it assumes that investors'
 18 expectations are, on average, equal to realized long-run rates of return and resultant risk
 19 premium. Observing a single year's risk premium, either high or low, may not be consistent
 20 with investors' requirements. Further, studies show a mean reversion in risk premiums.
 21 In other words, over time, risk premiums revert to a longer-term average premium.
 22 Moreover, since the expected rate of return is defined as "the rate of return expected to be
 23 realized from an investment; the mean value of the probability distribution of possible
 24 results,"²⁷ a long-term analysis of annual returns is appropriate.

25
 26 **Q. WHAT DO YOU CONCLUDE FROM THE INFORMATION SHOWN ON PAGES 3 AND 4 OF**
 27 **SCHEDULE 18?**

28 A. The average of the absolute range of the S&P Utilities' appropriate average risk premium
 29 (i.e., bonds rated AAA to A) was 4.0% during the seven periods studied, as calculated from
 30 page 3 of Schedule 18. The credit adjusted longer term risk premiums (i.e., bonds rated

²⁷ Eugene F. Brigham, Fundamentals of Financial Management, Fifth Edition, The Dryden Press, 1989, p. 106.

1 A), 1928-2018, and averages 4.3%. The appropriate average (i.e., bonds rated AAA to A)
 2 longer term risk premiums, 1928-2018, have an absolute range of 4.3% to 5.1%, and
 3 averages 4.6%.

4
 5 The aforementioned premiums are based on total returns for bonds; and reflect their price
 6 risk. A bond's price risk is not related to its credit quality and is eliminated when a bond
 7 is held to maturity from time of purchase. Using the income returns, page 4 of Schedule
 8 18, for bonds eliminates price risk and better measures an investor's required return based
 9 on credit quality. The appropriate average risk premium (i.e., bonds rated AAA to A)
 10 based on income returns was 4.9% during the seven periods studied. The credit adjusted
 11 longer term risk premiums (i.e., bonds rated A), 1928-2018, and averages 4.7%. The
 12 appropriate average (i.e., bonds rated AAA to A) longer term risk premiums, 1928-2018,
 13 have an absolute range of 4.7% to 5.0%, and averages 4.9%.

14
 15 **Q. WHAT INFORMATION IS SHOWN ON PAGE 5 OF SCHEDULE 18?**

16 A. Page 5 of Schedule 18 proves and measures the negative relationship between interest rate
 17 levels and the resulting risk premium. That is, risk premiums are generally higher when
 18 interest rates are low and risk premiums are generally lower when interest rates are high.
 19 This was proven by sorting the 91-year period, 1928 to 2018, annual returns based on
 20 interest rate level from lowest interest rate to highest interest rate and distributing the
 21 results into two roughly equal groups, a 46-year low interest rate environment group and a
 22 45-year high interest rate environment group.

23
 24 During the period 1928-2018, the 46 years with the lowest interest rates had an average
 25 interest rate of 3.0% and reflected a range of interest rates from 2.0% to 4.1%. This period
 26 resembles the current interest rate environment of 2.4% discussed previously regarding the
 27 CAPM's risk free rate. The risk premium based on total returns during this low interest
 28 rate environment produced the appropriate average (i.e., bonds rated AAA to A) longer
 29 term risk premium of 6.6% and a credit adjusted longer term risk premium (i.e., bonds
 30 rated A) of 5.9%. The annual income return based risk premium during this low interest
 31 rate environment produced the appropriate average (i.e., bonds rated AAA to A) longer

1 term risk premium of 7.3% and a credit adjusted longer term risk premium (i.e., bonds
2 rated A) of 7.0%.

3
4 However, during the period 1928-2018, the 45 years with the highest interest rates had an
5 average interest rate of 7.3% and reflected a range of interest rates from 4.2% to 13.5%.
6 This period is far different from the current interest rate environment of 2.7%. The risk
7 premium based on total returns during the highest interest rate environment produced an
8 average longer term risk premium of 2.7% over bonds rated AAA to A and a credit adjusted
9 longer term risk premium (i.e., bonds rated A) of only 2.6%. The annual income return
10 based risk premium during the highest interest rate environment produced an average
11 longer term risk premium of 2.5% over bonds rated AAA to A and a credit adjusted longer
12 term risk premium (i.e., bonds rated A) of only 2.4%.

13
14 Over time, risk premiums are mean reverting. They constantly move toward a long-term
15 average reflecting a long-term level of interest rates. That is, an above-average risk
16 premium will decrease toward a long-term average while a below-average risk premium
17 will increase toward a long-term average. In any single year, of course, investor-required
18 rates of return may not be realized and in certain instances, a single year's risk premiums
19 may be negative. Negative risk premiums are not indicative of investors' expectations
20 and violate the basic premise of finance concerning risk and return. Negative risk
21 premiums usually occur only in the stock market's down years (*i.e.*, the years in which the
22 stock markets' return was negative).

23
24 When interest rate levels are not considered the credit adjusted longer term risk premium
25 (i.e., bonds rated A), 1928-2018, averages 4.7%, discussed previously regarding page 4 of
26 Schedule 18. However, the annual income return based risk premium during the low
27 interest rate environment produced a credit adjusted longer term risk premium (i.e., bonds
28 rated A) of 7.0%. Since this period resembles the current interest rate environment of
29 2.4%, a reasonable estimate of investors risk premium based on historical returns is based
30 on a 50% weighting on the results of the entire 1928-2018 historical market returns and a

1 50% weighting on the results of the low interest rate environment to produce a 5.9%
2 historical risk premium.

3
4 Adding the risk premium of 5.9% for the Comparable Group to the prospective cost of
5 newly-issued long-term debt of 3.6% results in a market value risk premium derived cost
6 rate for common equity of 9.5% as reflected on page 1 of Schedule 18. Adjusting the
7 market value risk premium based upon the end result of the application of the Hamada
8 Model and the bond yield spread to account for the difference in leverage between market
9 value capitalization and book value ratios discussed previously indicates a cost rate of
10 10.4% applicable to book value ($9.5\% + 0.9\% = 10.4\%$).

11 12 **SUMMARY OF COMMON EQUITY COST RATE**

13 14 **Q. WHAT IS YOUR COMPARABLE GROUP'S COMMON EQUITY COST RATE?**

15 A. Based upon the results of the models employed, the Water Group's common equity cost
16 rate is in the range of 9.8% to 10.4% as reflected on Schedule 19. Based upon this data,
17 the common equity cost rate for the Water Group is at least 10.10%. My recommendation
18 is based upon the Water Group's 10.10% common equity cost rate.

19 20 **Q. DO YOU RECOMMEND A COST OF COMMON EQUITY OF 10.10% FOR PUI?**

21 A. No. Based upon the financial analysis and risk analysis, I conclude that PUI is exposed to
22 greater investment risk than the Comparable Group. This is evidenced by PUI's small
23 size, visible lower credit rating and the other factors summarized in Table 5 discussed
24 previously.

25 26 **Q. HOW DO YOU REFLECT THE INVESTMENT RISK DIFFERENCE BETWEEN PUI AND THE 27 COMPARABLE GROUP?**

28 A. The direction of the investment risk adjustment on common equity cost rates is clearly
29 known. A specific quantification of risk differences is based on PUI's implied maximum
30 BBB credit profile even though the evidence indicates PUI's credit rating is below BBB
31 (*i.e.*, BB). A maximum implied bond rating of BBB is a full bond rating below the bond

rating of the Comparable Companies. The difference in bond rating between PUI and the Comparable Companies suggests a minimum 40-basis point difference in long-term debt cost rates based upon the yield spread of A and BBB rated public utility debt.

A 40-basis point spread between PUI and the Water Group is a conservative estimate of the risk differential. Adding the 0.40% risk adjustment to the various results of the three models employed for the Water Group shows a current range of common equity cost applicable to book value for PUI of 10.50% (DCF), 10.20% (CAPM), and 10.80% (RP) as shown in Table 9.

Summary of the PUI's Equity Cost Rates	
DCF	10.50
CAPM	10.20
RP	10.80

Table 9

Q. WHAT IS YOUR COMMON EQUITY COST RATE RECOMMENDATION FOR PUI?

A. As discussed above and as shown in Schedule 19, I recommend a 10.50% common equity cost rate for PUI.

Q. HAVE YOU CHECKED THE REASONABLENESS OF YOUR RECOMMENDED COMMON EQUITY RATE FOR PUI?

A. Yes. Page 2 of Schedule 14 reflects the average projected earned return on average book common equity for the companies in the Comparable Group for the period 2022-2024, which is shown to range from 9.5% to 14.0%. Given the large degree to which regulatory lag and attrition impacts water utilities earning, the range of the comparable utilities' projected earned returns suggests that my recommendation that PUI be permitted an opportunity to earn 10.50% is reasonable, if not conservative.

OVERALL RATE OF RETURN RECOMMENDATION

Q. WHAT IS YOUR OVERALL FAIR RATE OF RETURN RECOMMENDATION FOR THE PUI?

A. Based upon the recommended capital structure and my estimate of the PUI's common equity cost rate, I recommend an overall fair rate of return of 8.57%. The details of my recommendation are shown on Schedule 1.

Q. HAVE YOU TESTED THE REASONABLENESS OF YOUR OVERALL FAIR RATE OF RETURN RECOMMENDATION?

A. Yes. If my recommended overall rate of return is actually earned, it will give PUI ratios that will allow PUI to present a financial profile that will enable it to attract capital necessary to provide safe and reliable water service, at reasonable terms.

Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

APPENDIX A

Professional Qualifications
of
Harold Walker, III
Manager, Financial Studies
Gannett Fleming Valuation and Rate Consultants, LLC.

EDUCATION

Mr. Walker graduated from Pennsylvania State University in 1984 with a Bachelor of Science Degree in Finance. His studies concentrated on securities analysis and portfolio management with an emphasis on economics and quantitative business analysis. He has also completed the regulation and the rate-making process courses presented by the College of Business Administration and Economics Center for Public Utilities at New Mexico State University. Additionally, he has attended programs presented by The Institute of Chartered Financial Analysts (CFA).

Mr. Walker was awarded the professional designation “Certified Rate of Return Analyst” (CRRRA) by the Society of Utility and Regulatory Financial Analysts. This designation is based upon education, experience and the successful completion of a comprehensive examination. He is also a member of the Society of Utility and Regulatory Financial Analysts (SURFA) and has attended numerous financial forums sponsored by the Society. The SURFA forums are recognized by the Association for Investment Management and Research (AIMR) and the National Association of State Boards of Accountancy for continuing education credits.

Mr. Walker is also a licensed Municipal Advisor Representative (Series 50) by Municipal Securities Rulemaking Board (MSRB) and Financial Industry Regulatory Authority (FINRA).

BUSINESS EXPERIENCE

Prior to joining Gannett Fleming Valuation and Rate Consultants, LLC., Mr. Walker was employed by AUS Consultants - Utility Services. He held various positions during his eleven years with AUS, concluding his employment there as a Vice President. His duties included providing and supervising financial and economic studies on behalf of investor owned and municipally owned water, wastewater, electric, natural gas distribution and transmission, oil pipeline and telephone utilities as well as resource recovery companies.

In 1996, Mr. Walker joined Gannett Fleming Valuation and Rate Consultants, LLC. In his capacity as Manager, Financial Studies and for the past twenty years, he has continuously studied rates of return requirements for regulated firms. In this regard, he supervised the preparation of rate of return studies in connection with his testimony and in the past, for other individuals. He also assisted and/or developed dividend policy studies, nuclear prudence studies, calculated fixed charge rates for avoided costs involving cogeneration projects, financial decision studies for capital budgeting purposes and developed financial models for determining future capital requirements and the effect of those requirements on investors and ratepayers, valued utility property and common stock for acquisition and divestiture, and assisted in the private placement of fixed capital securities for public utilities.

Head, Gannett Fleming GASB 34 Task Force responsible for developing Governmental Accounting Standards Board (GASB) 34 services, and educating Gannett Fleming personnel and Gannett Fleming clients on GASB 34 and how it may affect them. The GASB 34 related services include inventory of assets, valuation of assets, salvage estimation, annual depreciation rate determination, estimation of depreciation reserve, asset service life determination, asset condition assessment, condition assessment documentation, maintenance estimate for asset preservation, establishment of condition level index, geographic information system (GIS) and data management services, management discussion and analysis (MD&A) reporting, required supplemental information (RSI) reporting, auditor interface, and GASB 34 compliance review.

Mr. Walker was also the Publisher of C.A. Turner Utility Reports from 1988 to 1996. C.A. Turner Utility Reports is a financial publication which provides financial data and related ratios and forecasts covering the utility industry. From 1993 to 1994, he became a contributing author for the Fortnightly, a utility trade journal. His column was the Financial News column and focused mainly on the natural gas industry.

In 2004, Mr. Walker was elected to serve on the Board of Directors of SURFA. Previously, he served as an ex-officio directors as an advisor to SURFA's existing President. In 2000, Mr. Walker was elected President of SURFA for the 2001-2002 term. Prior to that, he was elected to serve on the Board of Directors of SURFA during the period 1997-1998 and 1999-2000. Currently, he also serves on the Pennsylvania Municipal Authorities Association, Electric Deregulation Committee.

EXPERT TESTIMONY

Mr. Walker has submitted testimony or been deposed on various topics before regulatory commissions and courts in 25 states including: Arizona, California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Missouri, New Hampshire, Nevada, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, and West Virginia. His testimonies covered various subjects including: fair market value, the taking of natural resources, appropriate capital structure and fixed capital cost rates, depreciation, fair rate of return, purchased water adjustments, synchronization of interest charges for income tax purposes, valuation, cash working capital, lead-lag studies, financial analyses of investment alternatives, and fair value. The following tabulation

provides a listing of the electric power, natural gas distribution, telephone, wastewater, and water service utility cases in which he has been involved as a witness. Additionally, he has been involved in a number of rate proceedings involving small public utilities which were resolved by Option Orders and therefore, are not listed below.

<u>Client</u>	<u>Docket No.</u>
Alpena Power Company	U-10020
Armstrong Telephone Company - Northern Division	92-0884-T-42T
Armstrong Telephone Company - Northern Division	95-0571-T-42T
Artesian Water Company, Inc.	90 10
Artesian Water Company, Inc.	06 158
Aqua Illinois Consolidated Water Divisions and Consolidated Sewer Divisions	11-0436
Aqua Illinois Hawthorn Woods Wastewater Division	07 0620/07 0621/08 0067
Aqua Illinois Hawthorn Woods Water Division	07 0620/07 0621/08 0067
Aqua Illinois Kankakee Water Division	10-0194
Aqua Illinois Kankakee Water Division	14-0419
Aqua Illinois Vermilion Division	07 0620/07 0621/08 0067
Aqua Illinois Willowbrook Wastewater Division	07 0620/07 0621/08 0067
Aqua Illinois Willowbrook Water Division	07 0620/07 0621/08 0067
Aqua Pennsylvania Wastewater Inc	A-2016-2580061
Aqua Pennsylvania Wastewater Inc	A-2017-2605434
Aqua Pennsylvania Wastewater Inc	A-2018-3001582
Aqua Pennsylvania Wastewater Inc	A-2019-3008491
Aqua Pennsylvania Wastewater Inc	A-2019-3009052
Aqua Pennsylvania Wastewater Inc	A-2019-3009052
Aqua Virginia - Alpha Water Corporation	Pue-2009-00059
Aqua Virginia - Blue Ridge Utility Company, Inc.	Pue-2009-00059
Aqua Virginia - Caroline Utilities, Inc. (Wastewater)	Pue-2009-00059
Aqua Virginia - Caroline Utilities, Inc. (Water)	Pue-2009-00059
Aqua Virginia - Earlysville Forest Water Company	Pue-2009-00059
Aqua Virginia - Heritage Homes of Virginia	Pue-2009-00059
Aqua Virginia - Indian River Water Company	Pue-2009-00059

Aqua Virginia - James River Service Corp.	Pue-2009-00059
Aqua Virginia - Lake Holiday Utilities, Inc.	
(Wastewater)	Pue-2009-00059
Aqua Virginia - Lake Holiday Utilities, Inc. (Water)	Pue-2009-00059
Aqua Virginia - Lake Monticello Services Co.	
(Wastewater)	Pue-2009-00059
Aqua Virginia - Lake Monticello Services Co.	
(Water)	Pue-2009-00059
Aqua Virginia - Lake Shawnee	Pue-2009-00059
Aqua Virginia - Land'or Utility Company	
(Wastewater)	Pue-2009-00059
Aqua Virginia - Land'or Utility Company (Water)	Pue-2009-00059
Aqua Virginia - Mountainview Water Company, Inc.	Pue-2009-00059
Aqua Virginia - Powhatan Water Works, Inc.	Pue-2009-00059
Aqua Virginia - Rainbow Forest Water Corporation	Pue-2009-00059
Aqua Virginia - Shawnee Land	Pue-2009-00059
Aqua Virginia - Sydnor Water Corporation	Pue-2009-00059
Aqua Virginia - Water Distributors, Inc.	Pue-2009-00059
Berkshire Gas Company	18-40
Borough of Hanover	R-2009-2106908
Borough of Hanover	R-2012-2311725
Borough of Hanover	R-2014-242830
Chaparral City Water Company	W 02113a 04 0616
California-American Water Company	CIVCV156413
Connecticut-American Water Company	99-08-32
Connecticut Water Company	06 07 08
Citizens Utilities Company	
Colorado Gas Division	-
Citizens Utilities Company	
Vermont Electric Division	5426
Citizens Utilities Home Water Company	R 901664
Citizens Utilities Water Company	
of Pennsylvania	R 901663
City of Bethlehem - Bureau of Water	R-00984375
City of Bethlehem - Bureau of Water	R 00072492
City of Bethlehem - Bureau of Water	R-2013-2390244
City of Dubois – Bureau of Water	R-2013-2350509
City of Dubois – Bureau of Water	R-2016-2554150

City of Lancaster Sewer Fund	R-00005109
City of Lancaster Sewer Fund	R-00049862
City of Lancaster Sewer Fund	R-2012-2310366
City of Lancaster Sewer Fund	R-2019-3010955
City of Lancaster Sewer Fund	R-2019-3010955
City of Lancaster Water Fund	R-00984567
City of Lancaster Water Fund	R-00016114
City of Lancaster Water Fund	R 00051167
City of Lancaster Water Fund	R-2010-2179103
City of Lancaster Water Fund	R-2014-2418872
Coastland Corporation	15-cvs-216
Consumers Pennsylvania Water Company Roaring Creek Division	R-00973869
Consumers Pennsylvania Water Company Shenango Valley Division	R-00973972
Country Knolls Water Works, Inc.	90 W 0458
East Resources, Inc. - West Virginia Utility	06 0445 G 42T
Elizabethtown Water Company	WR06030257
Forest Park, Inc.	19-W-0168 & 19-W-0269
Hampton Water Works Company	DW 99-057
Hidden Valley Utility Services, LP	R-2018-3001306
Hidden Valley Utility Services, LP	R-2018-3001307
Illinois American Water Company	16-0093
Indian Rock Water Company	R-911971
Indiana Natural Gas Corporation	38891
Jamaica Water Supply Company	-
Kane Borough Authority	A-2019-3014248
Kentucky American Water Company, Inc.	2007 00134
Middlesex Water Company	WR 89030266J
Millcreek Township Water Authority	55 198 Y 00021 11
Missouri-American Water Company	WR 2000-281
Missouri-American Water Company	SR 2000-282
Mount Holly Water Company	WR06030257
New Jersey American Water Company	WR 89080702J
New Jersey American Water Company	WR 90090950J
New Jersey American Water Company	WR 03070511
New Jersey American Water Company	WR-06030257

New Jersey American Water Company	WR08010020
New Jersey American Water Company	WR10040260
New Jersey American Water Company	WR11070460
New Jersey American Water Company	WR15010035
New Jersey American Water Company	WR17090985
New Jersey American Water Company	WR19121516
New Jersey Natural Gas Company	GR19030420
Newtown Artesian Water Company	R-911977
Newtown Artesian Water Company	R-00943157
Newtown Artesian Water Company	R-2009-2117550
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Newtown Artesian Water Company	R-2017-2624240
Newtown Artesian Water Company	R-2019-3006904
North Maine Utilities	14-0396
Northern Indiana Fuel & Light Company	38770
Oklahoma Natural Gas Company	PUD-940000477
Palmetto Wastewater Reclamation, LLC	2018-82-S
Pennichuck Water Works, Inc.	DW 04 048
Pennichuck Water Works, Inc.	DW 06 073
Pennichuck Water Works, Inc.	DW 08 073
Pennsylvania Gas & Water Company (Gas)	R-891261
Pennsylvania Gas & Water Co. (Water)	R 901726
Pennsylvania Gas & Water Co. (Water)	R-911966
Pennsylvania Gas & Water Co. (Water)	R-22404
Pennsylvania Gas & Water Co. (Water)	R-00922482
Pennsylvania Gas & Water Co. (Water)	R-00932667
Public Service Company of North Carolina, Inc.	G-5, Sub 565
Public Service Electric and Gas Company	ER181010029
Public Service Electric and Gas Company	GR18010030
Presque Isle Harbor Water Company	U-9702
Sierra Pacific Power Company d/b/a NV Energy	19-06002
St. Louis County Water Company	WR-2000-844
Suez Water Delaware, Inc.	19-0615
Suez Water New Jersey, Inc.	WR18050593
Suez Water Owego-Nichols, Inc.	17-W-0528
Suez Water Pennsylvania, Inc.	R-2018-3000834
Suez Water Pennsylvania, Inc.	A-2018-3003519

Suez Water Pennsylvania, Inc.	A-2018-3003517
Suez Water Rhode Island, Inc.	Docket No. 4800
Suez Water Owego-Nichols, Inc.	19-W-0168 & 19-W-0269
Suez Water New York, Inc.	19-W-0168 & 19-W-0269
Suez Westchester, Inc.	19-W-0168 & 19-W-0269
Town of North East Water Fund	9190
Township of Exeter	A-2018-3004933
United Water New Rochelle	W-95-W-1168
United Water Toms River	WR-95050219
Valley Water Systems, Inc.	06 10 07
Virginia American Water Company	PUR-2018-00175
West Virginia-American Water Company	15-0676-W-42T
West Virginia-American Water Company	15-0675-S-42T
Wilmington Suburban Water Corporation	94-149
York Water Company	R-901813
York Water Company	R-922168
York Water Company	R-943053
York Water Company	R-963619
York Water Company	R-994605
York Water Company	R-00016236
Young Brothers, LLC	2019-0117